

ABSTRACT OF THE DISCLOSURE

A method for forming a semiconductor device, which features omitting a separated procedure for forming a barrier layer by molding a bottom electrode of a capacitor with TiN compounds. The method for forming a bottom electrode of a capacitor with little roughness on the surface by skipping the etching step for patterning on a metallic layer includes: molding a storage node hole to expose the plug by forming a sacrificial layer on the semiconductor substrate where transistors and plugs are formed and etching the sacrificial layer optionally; and by embedding TiN in the storage node hole and separating the neighboring bottom electrodes in the chemical-mechanical polishing method or etch back.